

Notice of Allowability

Application No.

10/721,060

Examiner

MINH D. DAO

Applicant(s)

LIN ET AL.

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to ____.
2. ☒ The allowed claim(s) is/are 1-16.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

REASONS FOR ALLOWANCE

1. Claims 1-16 are allowed.
2. The following is an examiner's statement of reasons for allowance:

Regarding claim 1, the closest prior art of record are: Eilts et al. (US 2003/0081695), Pukkila et al. (US 6,418,175), Parr et al. (US 5,537,419). Eilts teaches a method that determines a channel estimate utilizing partial channel estimates to provide an aggregated channel estimate. Pukkila teaches a method involving channel estimation based on samples of received co-channel signals. Parr teaches generating estimates of transmission channel impulse response using a subset of the samples received during a time slot. However, Eilts, Pukkila and Parr, alone or in combination, fail to teach a method of frequency estimation for a GSM communications system comprising:

- (a) receiving a frequency control channel data burst;
- (b) sampling said data burst into a plurality of subsets;
- (c) filtering at least one of said plurality of subsets to generate a filtered subset;
- (d) correlating each filtered subset and summing the result into a parameter r ;
- (e) updating a filter parameter of said filter using the parameter r ;

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- (f) repeating steps (c) - (e) N iterations; and
- (g) calculating an estimated frequency based upon the parameter r.

As specified in the claim.

Regarding claim 9, the closest prior art of record are: Eilts et al. (US 2003/0081695), Pukkila et al. (US 6,418,175), Parr et al. (US 5,537,419). Eilts teaches a method that determines a channel estimate utilizing partial channel estimates to provide an aggregated channel estimate. Pukkila teaches a method involving channel estimation based on samples of received co-channel signals. Parr teaches generating estimates of transmission channel impulse response using a subset of the samples received during a time slot. However, Eilts, Pukkila and Parr, alone or in combination, fail to teach An apparatus for frequency estimation in a GSM communications system comprising:

- (a) means for receiving a frequency control channel data burst;
- (b) means for sampling said data burst into a plurality of subsets;
- (c) means for filtering at least one of said plurality of subsets to generate a filtered subset;
- (d) means for correlating each filtered subset and summing the result into a parameter r;
- (e) means for updating a filter parameter of said filter using the parameter r;
- (g) means for calculating an estimated frequency based upon the parameter r. As specified in the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MINH D. DAO whose telephone number is 571-272-7851. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MATTHEW ANDERSON can be reached on 571-272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Minh Dao 
AU 2618



Matthew Anderson
Supervisor AU 2618